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Nos. 82-524, 82-545, and 82-551

IN THE

# Supreme Court of the United States

OCTOBER TERM, 1982

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BALTIMORE GAS AND ELECTRIC COMPANY, *et al.*,
*Petitioners*

v.

NATURAL RESOURCES DEFENSE COUNCIL, INC.,
*Respondent*

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UNITED STATES NUCLEAR REGULATORY COMMISSION, *et al.*,
*Petitioners*

v.

NATURAL RESOURCES DEFENSE COUNCIL, INC., *et al.*,
*Respondents*

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COMMONWEALTH EDISON COMPANY,
THE DETROIT EDISON COMPANY,
EXXON NUCLEAR COMPANY, INC.,
NIAGARA MOHAWK POWER CORPORATION,
OMAHA PUBLIC POWER DISTRICT,
POWER AUTHORITY OF THE STATE OF NEW YORK,
PUBLIC SERVICE COMPANY OF INDIANA, INC., AND
ROCHESTER GAS AND ELECTRIC CORPORATION,
*Petitioners*

v.

NATURAL RESOURCES DEFENSE COUNCIL, INC., *et al.*,
*Respondents*

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**On Writs of Certiorari to the United States Court of Appeals for the District of Columbia Circuit**

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## BRIEF FOR PETITIONERS COMMONWEALTH EDISON COMPANY, *ET AL.*

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## QUESTIONS PRESENTED

If the record and statement of basis support the adequacy of agency consideration of "uncertainties" in quantifying generic secondary environmental costs in an APA rulemaking, does NEPA require the agency, nonetheless, to allow further debate of those "uncertainties" in individual licensing cases?

May a court substitute its judgment for that of an agency in the methodology for quantifying environmental costs and/or the assessment of those costs, where both involve predictive technological analyses within the expertise of the agency?

In reviewing the sufficiency of an agency's consideration of environmental costs, is a court limited by the time at which the decision was made?

## PARTIES TO THE PROCEEDINGS

The parties in this proceeding in the court below include the Petitioners in Docket No. 82-551 listed on the cover.

The other parties in the proceeding below were the Pacific Legal Foundation, the Tennessee Valley Authority, the Natural Resources Defense Council, Inc., the Consolidated National Intervenors, the States of New York and Wisconsin, the Nuclear Regulatory Commission and the United States of America, and the following utilities: Baltimore Gas and Electric Company, Boston Edison Company, Carolina Power & Light Company, Consumers Power Company, Long Island Lighting Company, Northeast Nuclear Energy Company, Northeast Utilities Service Company, Pacific Gas and Electric Company, Pennsylvania Power & Light Company, Philadelphia Electric Company, Public Service Electric and Gas Company, San Diego Gas & Electric Company, Southern California Edison Company, The Connecticut Light and Power Company, The Hartford Electric Light Company, Virginia Electric and Power Company, Western Massachusetts Electric Company, and Yankee Atomic Electric Company (collectively "Baltimore Gas & Electric, *et al.*").

A listing naming all parent companies, subsidiaries (except wholly owned subsidiaries) and affiliates of each of the Petitioners in Docket No. 82-551 was provided in the Petition for Certiorari filed on behalf of Commonwealth Edison, *et al.* at p. ii. That listing is currently accurate without amendment.

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**On Writs of Certiorari to the United States Court of Appeals for the District of Columbia Circuit**

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## BRIEF FOR PETITIONERS COMMONWEALTH EDISON COMPANY, *ET AL.*

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Commonweailth Edison Company, *et al.*, petitioners in No. 82-551, respectfully submit this brief on the merits in the consolidated cases.

## OPINIONS BELOW

The opinion of the court of appeals on all three generations of the rule is reported at 685 F.2d 459 (D.C. Cir. 1982) and is reproduced at Petitioners' Appendix ("Pet. App.") at 1a-181a.[1] The orders denying rehearing and rehearing *en banc* are reported at 685 F.2d at 545 and 546 and are reproduced at Pet. App. 185a and 188a.

The earlier decision of the court of appeals on the first generation of the rule, *Natural Resources Defense Council, Inc. v. NRC*, is reported at 547 F.2d 633 (D.C. Cir. 1976). The decision of this Court unanimously reversing that earlier decision and remanding it, *sub nom. Vermont Yankee Nuclear Corp. v. Natural Resources Defense Council, Inc.*, is reported at 435 U.S. 519 (1978).

The Statements of Consideration accompanying the different generations of the "Table S-3 Rule" promulgated by the U.S. Nuclear Regulatory Commission and its predecessor, the U.S. Atomic Energy Commission (both "Commission"), are published along with the Table S-3 Rules in the *Federal Register* and appear in Petitioners' Appendix as follows: 39 Fed.Reg. 14,188 (1974), Pet. App. 224a ("Original Rule"); 52 Fed.Reg. 13,803 (1977), Pet. App. 240a ("Interim Rule"); 43 Fed.Reg. 15,613 (1978), Pet. App. 259a ("Amended Interim Rule") and 44 Fed.Reg. 45,362 (1979), Pet. App. 341a ("Final Rule"). The Conclusions and Recommendations of the Nuclear Fuel Cycle Hearing Board regarding the Final Rule appear at Pet. App. 274a.

## JURISDICTION

This Court's jurisdiction is invoked pursuant to 28 U.S.C. § 1254(1). The judgment of the court of appeals was rendered on April 27, 1982 (J.A. 16, 26, 35, 43) and timely filed petitions for rehearing of Respondent U.S.

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[1] "Pet. App." herein refers to the Petitioners' Appendix filed in *Commonwealth Edison Company, et al. v. NRDC et al.*, No. 82-551. "J.A." herein refers to the Joint Appendix filed in the consolidated cases in Docket Nos. 82-524, 82-545, 82,551.

Nuclear Regulatory Commission and Intervenors Commnowealth Edison Company, *et al.* were denied on June 30, 1982 (J.A. 17, 27, 36, 44). Petitions for certiorari were filed by Baltimore Gas & Electric Co., *et al.* (in No. 82-524 on September 24, 1982), the Federal Respondents (in No. 82-545 on September 27, 1982) and Commonwealth Edison Company, *et al.* (in No. 82-551 on September 28, 1982). All three petitions were granted and consolidated on November 29, 1982.

## STATUTES AND REGULATIONS INVOLVED

The text of Sections 4 and 10(e) of the Administrative Procedure Act, 5 U.S.C. §§ 553, 706 (1976 & Supp. V 1981) ("APA"), sections 1-3, 101-103, 161, 181 and 189 of the Atomic Energy Act of 1954, 42 U.S.C. §§ 2011-2013, 2131-2133, 2201, 2231, 2239 (1976 & Supp. IV 1980) ("AEA"), sections 2, 104, 201, 203, 204 and 301 of the Energy Reorganization Act of 1974, 42 U.S.C. §§ 5801, 5814, 5841, 5843, 5844, 5871 (1976 & Supp. IV 1980) ("ERA"), and sections 101 and 102 of the National Environmental Policy Act of 1969, 42 U.S.C. §§ 4331 and 4332 (1976 & Supp. IV 1980) ("NEPA"), are set forth at Pet. App. 391a-434a.

This case also involves the Original, Interim, amended Interim, and Final Table S-3 Rules which are reproduced at Pet. App. 237a, 254a, 271a, and 378a, respectively noted, and parts of the Council on Environmental Quality ("CEQ") Guidelines and the subsequent Regulations which are set forth at Pet. App. 435a-41a.

## STATEMENT OF THE CASE

This case involves a decision of the United States Court of Appeals vacating three generations of a Commission [2]

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[2] The term "Commission" is used herein to refer to both the U.S. Atomic Energy Commission ("AEC") and the agency that succeeded to its regulatory responsibilities on January 19, 1975, the U.S. Nuclear Regulatory Commission ("NRC"). 42 U.S.C. §§ 2011-2284 (1976 & Supp. IV 1980); 42 U.S.C. §§ 5801-5891 (1976 & Supp. IV

rule quantifying the secondary generic environmental effects of the Uranium Fuel Cycle [3] for consideration in the environmental analysis of the licensing of individual power reactors.[4] All three generations of the rulemaking

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1980); Exec. Order No. 11,834, (1975), *reprinted in* 42 U.S.C. § 5801 app., at 1906 (1976).

[3] An understanding of the concept "Uranium Fuel Cycle" is important: In order to render uranium into an acceptable form for use in light power reactors, one must first mine uranium ore and mill it to separate out the triuranium octoxide ($U_3O_8$ or yellow cake) which is then converted into a gas (uranium hexafluoride or $UF_6$) to concentrate the amount of uranium U-235 in a process called enrichment. This gas is then reconverted to a solid as uranium dioxide ($UO_2$), formed into pellets and inserted in fuel rods, which are then put into assemblies and delivered to the reactor for use as reactor fuel. All of these activities before use of the reactor are referred to as the "front-end" activities.

After use in the reactor, the fuel ("spent fuel") is expected to be stored on and/or off site at the reactor for a period of time and thereafter either (a) transported directly to a federal repository for disposal by burial or (b) transported to a reprocessing plant for recovery of the reusable elements for recycling into the reactor and separation of the waste products which are then reconverted into a solid and encapsulated and transported to the repository after a period of time for burial, as in the case above of the direct disposal of spent fuel. These two alternative processes are referred to as "back-end" activities of the fuel cycle.

That term is used to refer to the fact that, for the purposes of this rule, the Commission posited that the only material which might be recovered for recycling from the spent fuel would be Uranium-235; it foresees the plutonium being treated as a waste product. *See*, Pet. App. 226a, 230a (Statement of Consideration for Original Rule), 244a-246a (Statement of Consideration for Interim Rule), 356a n.13 (Statement of Consideration for Final Rule). The recovery of plutonium for recycle in a light water reactor or a breeder reactor is outside the scope of these proceedings and is within the scope of other independent proceedings related to the breeder reactor and the use of mixed oxide (uranium and plutonium) fuel in light water reactors (*see, e.g.*, Pet. App. 245a-46a).

[4] Petitions for review of each of these three generations of the rule were filed in the U.S. Court of Appeals for the District of Columbia Circuit pursuant to 28 U.S.C. §§ 2341-50 (1976).

were conducted pursuant to the informal procedures of section 4 of the APA (Pet. App. 391a) to determine generic technical facts for a limited purpose.

This Statement of the Case is presented in historical order of significant events.

***1954***

The Congress enacted the Atomic Energy Act of 1954. 42 U.S.C. §§ 2011-2284 (1976 & Supp. IV 1980). This Act authorized and directed the Atomic Energy Commission to develop and license civilian atomic energy projects for the public welfare and consistent with the public health and safety. At that time Congress foresaw that one of the principal benefits would be the use of atomic energy to produce electricity. Due to previous experience with atomic energy, the fuel cycle was well known. *See, e.g.*, STASON *et al.*, ATOMS AND THE LAW 192-99 (1959); *Development, Growth, and State of the Atomic Energy Industry: Hearings Before the Joint Comm. on Atomic Energy*, 86th Cong., 1st Sess. 556-58 (1959). From the earliest point of commercial development, there have been extensive Congressional hearings on commercial radioactive waste disposal. *E.g.*, *Industrial Radioactive Waste Disposal: Hearings Before the Special Subcomm. on Radiation of the Joint Comm. on Atomic Energy* (4 Vols.), 86th Cong., 1st Sess. (1959); U.S.A.E.C., CIVILIAN NUCLEAR POWER—A REPORT TO THE PRESIDENT—1962, *reprinted in Development, Growth, and State of the Atomic Energy Industry: Hearings Before the Joint Comm. on Atomic Energy*, 88th Cong., 1st Sess. 305, 366-67 (1963).

***1969-70***

The Congress enacted the National Environmental Policy Act of 1969 ("NEPA"), and it became law on January 1, 1970. 42 U.S.C. §§ 4321-4347 (1976).

***The Calvert Cliffs' Decision***

On July 23, 1971, the D.C. Circuit issued its decision in *Calvert Cliffs' Coordinating Committee, Inc. v. AEC*, 449 F.2d 1109 (D.C. Cir. 1971). In this decision the Court reviewed the Commission's implementation of NEPA through rulemaking.[5]

***1972***

Over eleven years ago intervenors opposing issuance of an operating license to Vermont Yankee Nuclear Power Corporation asserted for the first time that the Environmental Impact Statement ("EIS") under NEPA must consider the radioactive hazards of reprocessing fuel after its use in that power plant ("spent fuel"), as well as the disposition and ultimate storage of the high-level wastes from such spent fuel. The intervenors also requested consideration of the transportation of spent fuel from the reactor to the reprocessing plant and of high-level waste from the reprocessing plant to ultimate storage, as well as the environmental costs of decommissioning the reactor on expiration of its licenses. The Atomic Safety and Licensing Board sustained *Vermont Yankee's* objections to its consideration of these issues, but certified the questions to the Atomic Safety and Licensing Appeal Board. On June 6, 1972, the Appeal Board issued a Memorandum and Order[6] in which it

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[5] The Commission had issued a policy statement on April 2, 1970, 35 Fed. Reg. 5463 (1970), Notice of Proposed Rulemaking on June 3, 35 Fed. Reg. 8694 (1970), and adopted its first rules on December 3, 1970, 35 Fed. Reg. 18,469 (1970).

[6] 4 A.E.C. 930, 931 (1972). However, the Appeals Board also determined that the impacts of reprocessing and waste disposal were beyond the proper scope of a reactor EIS. *Id.* at 932. The Appeal Board reasoned that since reprocessing and waste disposal were separate activities and since there was no way of relating particular present or future reprocessing plants or waste disposal sites to a particular reactor, the only point where intelligent con-

ruled that consideration of transportation of spent fuel, other high-level waste, and low-level waste from the reactor is within the proper scope of each reactor EIS, as is decommissioning and decontamination of the reactor itself.

Shortly, intervenors in other proceedings attempted to introduce similar issues related to the so-called "front-end" fuel cycle activities in individual reactor license proceedings. The Appeal Board also excluded consideration of these activities from individual reactor licensing proceedings for the same reasons.[7]

***The Original Rule***

On November 15, 1972, the Commission issued notice of an informal rulemaking to consider the applicability of the principle that each EIS for a reactor license application should contain a "full and frank disclosure and consideration of the costs and benefits of the proposed action" to the issue of whether to include a calculation of the environmental costs of the Uranium Fuel Cycle. 37 Fed. Reg. 24,191, 24,192 (1972). As a technical basis for this rulemaking, the Commission published the ENVIRONMENTAL SURVEY OF THE NUCLEAR FUEL CYCLE, WASH 1248, which provided conservative calculations[8]

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sideration (and mitigation) of the environmental costs of those independent activities could take place would be in those fuel cycle activity licensing proceedings, not reactor licensing proceedings. *Id.* at 934-35.

[7] *E.g., In the Matter of Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-99, 6 A.E.C. 53 (1973); *id.*, ALAB-156, 6 A.E.C. 831 (1973); *In the Matter of Consumers Power Co.* (Midland Plant, Units 1 & 2), ALAB-60, 5 A.E.C. 261 (1972). *See also Ecology Action v. AEC*, 492 F.2d 998 (2d Cir. 1974).

[8] The Commission's conservatism in these calculations is compounded by its exaggeration of raising the amount of fuel consumed, underestimating the amount of electricity produced and then underestimating the efficiency of filters and other protective devices (*e.g.*, Pet. App. 282-93a). The use of the values in the Table for the purposes of a cost-benefit analysis is made even more conservative by the fact that the Commission takes *no* credit for any offsetting benefits of the fuel cycle activities.

of those costs on a normalized model reactor year basis. The Commission requested comment on two alternatives: (a) whether those costs should be included in the NEPA analysis on the basis of the Table resulting from WASH 1248 or (b) whether they could be excluded "since the environmental effects of those activities are related to a particular light water-cooled nuclear power reactor . . . are sufficiently small as not to affect significantly the resultant conclusion." *Id.*

After hearings and written comments, the Commission published its decision[9] with a Statement of Consideration on April 22, 1974 (Pet. App. 224a). The Commission decided to include the calculated environmental effects in the Table since that would serve the objective of quantifying "to the fullest extent practicable, the environmental effects of the uranium fuel cycle in individual cost-benefit analyses" (Pet. App. 235a), although it determined that these secondary costs "have been shown to be relatively insignificant" (Pet. App. 234a).

***Vermont Yankee I***

On review of the Original rule (Pet. App. 237a), a panel of the court of appeals unanimously remanded the portions of the rule relating to reprocessing and high-level waste storage to the Commission.[10]

The immediate result of *Vermont Yankee I* was the cessation of reactor licensing by the Commission decision of August 13, 1976. 41 Fed.Reg. 34,707 (1976).

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[9] The Commission's rulemaking decision had as its basis the 260 page revised ENVIRONMENTAL SURVEY, the written comments of 46 participants and the Regulatory Staff, the 520 page transcript of the oral proceedings, all documents referenced in the foregoing, the Board's report to the Commission, and finally, the 4,000 word Statement of Consideration issued by the Commission with the rule.

[10] *Natural Resources Defense Council, Inc. v. NRC*, 547 F.2d 633 (D.C. Cir. 1976) (*"Vermont Yankee I"*), *rev'd sub nom., Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519 (1978) (*"Vermont Yankee II"*).

***The Interim Rule***

On October 18, 1976, the Commission published notice of a proposed Interim Rule quantifying the environmental costs of reprocessing and high-level waste management based on an extensive survey of the literature. 41 Fed.Reg. 45,849 (1976). The Commission published the Interim Rule on March 14, 1977 (Pet. App. 240a).[11] Thereafter, reactor licensing resumed. After NRDC filed its petition to review the Interim Rule, the court of appeals decided to hold that petition in abeyance pending the Supreme Court's disposition of the writ of certiorari to *Vermont Yankee I* (Pet. App. 195a; J.A. 20).

***Vermont Yankee II***

During the course of the final rulemaking, this Court reversed and remanded the decision of the Court of Appeals as to the Original Rule on April 3, 1978. *Vermont Yankee II*, 435 U.S. 519 (1978). And the court of appeals decided to hold both the remand of the Original Rule and the petition for review of the Interim Rule in abeyance further, pending the Commission's decision on the Final Rule (Pet. App. 200a-01a; J.A. 11, 21).

***Amended Interim Rule***

On April 14, 1978, the Commission amended the Interim Rule (Pet. App. 259a) to, among other things, delete radon-222 from the Table and affirm prior deci-

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[11] The Interim Rule was published after a notice-and-written comment only rulemaking addressing the analysis in the ENVIRONMENTAL SURVEY OF REPROCESSING AND WASTE MANAGEMENT PORTIONS OF THE LWR FUEL CYCLE. NUREG-0116 (Supp. 1 to WASH 1248) ("NUREG-0116"). This 300-page survey of the literature on the back-end activities of reprocessing and waste management dwarfed the previous survey of the *entire* fuel cycle. Comments from 52 persons, states and other entities were received, reprinted and addressed in a 422-page volume known as NUREG-0216 (Supp. 2 to WASH 1248). Thereafter, the Commission decided to issue an interim rule in accordance with its Statement of Consideration (Pet. App. 240a). In so doing, it stated that no further discussion of the costs stated in the Table would be "required" (Pet. App. 255a).

sions of the Appeal Board as to the scope of that Interim Rule.[12]

***Final Rule***

On May 26, 1977, the Commission had begun the third generation of this rulemaking which resulted in the Final Rule on August 2, 1979 (Pet. App. 341a). In the third generation of this rulemaking, there were 46 participants including federal agencies, states, public interest groups, utilities and other entities. The proceeding included the record of the previous generations and developed a further examination of the issues. After record was closed,[13] the Hearing Board prepared a 137-page report and later provided the Commission with its Conclusions and Recommendations (Pet. App. 274a-338a). The Commission then received further written comments from the participants (Pet. App. 358a) and heard oral argument on January 19, 1979 (Pet. App. 359a).

On July 27, 1979, the Commission adopted the Final Rule (Pet. App. 383a) on the basis of the record and an extensive Statement of Consideration (Pet. App. 341a-

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[12] In amending the Interim Rule, the Commission considered a petition for rulemaking and found that several issues raised had already been adequately addressed, but that sufficient new information had been developed with respect to radon-222 to require the elimination of the Table S-3 calculation allowing litigation of this value in licensing proceedings (Pet. App. 263a-64a). The Commission also deleted note 5 and endorsed the prior decision of the Appeal Board requiring the individual litigation of health effects (Pet. App. 265a-66a) and discussed its on-going program to gather more data for the Table (Pet. App. 269a-71a). In particular, it also amended note 1 to the Table to make it clear that areas not addressed therein are open to litigation (Pet. App. 272a).

[13] The record in the final rulemaking consisted not only of the prior record but also of 1,100 pages of direct written testimony followed by two rounds of written questions producing several hundred pages of answers and then ten days of oral questioning by the Board (1,200 transcript pages) followed by written rebuttal testimony and then concluding statements (Pet. App. 357a-58a).

78a), including the separate views of two Commissioners (Pet. App. 383a-90a).

***Vermont Yankee III***

Separate petitions for review were filed by the State of New York and the NRDC and were consolidated *sua sponte* by the court of appeals (Pet. App. 202a). Subsequently, the court of appeals consolidated all four petitions for review of all three stages of the rulemaking "for all purposes" (Pet. App. 210a). Thereafter, that court requested participation of all parties on all issues relating to all three generations of the rule, regardless of the matter in which a party had petitioned or intervened (*e.g.*, Pet. App. 214a).

On April 27, 1982, the court of appeals issued the decision which is the subject of these writs of certiorari (Pet. App. 1a-181a).[14]

The opinion for the majority of the court by Senior Circuit Judge Bazelon (Pet. App. 1a-69a) holds[15] that all three generations of the rule are invalid because uncertainty is an independent environmental cost (Pet. App. 45a) which must be considered by individual licensing boards regardless of its consideration in reaching the quantification of impacts in the rulemaking (Pet. App. 46a) and the Final Rule would prevent such dedate. The court of appeals found that this result is dictated by *Calvert Cliffs' Coordinating Committee, Inc. v. AEC*, 449 F.2d 1109, 1118 (D.C. Cir. 1971) (Pet. App. 46a & n.125). The majority also held that the Original Rule

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[14] Subsequently, the court issued orders staying the mandate until October 1, 1982 (Pet. App. 190a), and correcting errors in the opinions (Pet. App. 191a and 193a).

[15] A majority of this panel, composed of Judges Bazelon and Wilkey, also held that the Commission's finding of economic feasibility was not arbitrary or capricious (Pet. App. 61a-69a). Judge Edwards dissented from this holding (Pet. App. 115a-16a). The petitioners here do not challenge this holding.

and the Interim (prior to amendment) Rule were invalid additionally for failure to allow licensing boards to consider cancer deaths, genetic defects, potential social, psychological and economic disruptions related to back-end activities, and cumulative effects of licensing reactors (Pet. App. 52a-60a, 69a).

Chief Judge Edwards of the Sixth Circuit joined Senior Circuit Judge Bazelon to form a majority as to these two holdings and filed an extensive opinion (Pet. App. 70a-116a) discussing, in general, this nation's nuclear power program.

Circuit Judge Wilkey dissented from the majority with a detailed rebuttal of the majority analysis citing, *inter alia*, extensively to this Court's decision in *Vermont Yankee II* (Pet. App. 117a-81a).

In relation to the denial of the petitions for reconsideration, Judge Bazelon filed a statement reiterating that *Calvert Cliffs'* requires the individual licensing boards to consider uncertainty (Pet. App. 186a-87a).

The suggestions for rehearing *en banc* were denied with a statement appended: "Judge Wilkey does not ask for *en banc* consideration because he believes nothing should delay consideration of this case by the Supreme Court" (Pet. App. 189a).

## SUMMARY OF ARGUMENT

The Court below invalidated three cumulative generations of the Uranium Fuel Cycle Rule on the basis that they do not allow for the debate of the barely mathematically existing uncertainties related to the possible release of radioactivity from a repository after it has been sealed as well as the uncertainty whether such a repository will be established. It also invalidated two generations of that rule on the basis that they excluded issues which no one raised.

First, the consideration of uncertainty in the establishment of generic findings is a classic function of rule-

making. As formerly held by this Court, NEPA does not change the requirements for rulemaking. Thus, according to well-established law, it was permissible and proper for the Commission to incorporate its consideration of uncertainty into the rulemakings and thereafter exclude debate of uncertainty from individual licensing proceedings.

Second, the cumulative record in these proceedings demonstrates not only the adequacy of the Commission's consideration of the quantitative uncertainties, but a considerable conservatism in the bounding of the impacts quantified in Table S-3.

Third, the Court of Appeals erred in invalidating the Uranium Fuel Cycle Rule for a failure to allow debate of the uncertainty whether a repository will ever be established. This "uncertainty" is one addressed by Congress and therefore not subject to a judicial requirement for agency consideration.

Finally, in voiding the Original and Interim Rules because of their alleged "preclusive effect", the Court erred in basing its judgment on issues which were not raised by intervenors and in relying on regulations issued after the Final Rule.

## ARGUMENT

### I. THE COURT OF APPEALS ERRED IN CHARACTERIZING UNCERTAINTY AS AN INDEPENDENT ENVIRONMENTAL COST TO BE DEBATED BEFORE THE LICENSING BOARDS

This case presents a fundamental issue under the Administrative Procedure Act, 5 U.S.C. § 553 (1976). The issue is whether an agency must allow further debate of "uncertainties" in individual licensing cases after it has already considered those "uncertainties" in determining a quantification of environmental costs in a rulemaking.[18]

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[18] In Argument I, we address only the issue of whether uncertainty may be considered in a rulemaking and then excluded from

In concluding that the Original, Interim and Final Table S-3 Rules are invalid due to their failure to allow for further consideration of the uncertainty related to the statement that solidified high-level and transuranic wastes will not affect the environment once they are sealed in a permanent repository[17] (Pet. App. 45a-46a, 69a), the court of appeals has made a metaphysical leap: It has ruled that uncertainties, at least in the context of NEPA, are independent environmental costs which can never be excluded from debate in an individual reactor licensing decision regardless of their previous consideration in a rulemaking (Pet. App. 45a-46a).

This would eliminate the value of rulemaking in avoiding the delays which result from the repetitive discussion of generic issues in individual licensing proceedings. This holding is not only contrary to the general decisions of this Court and the courts of appeals on the ability of an agency to consider generic issues by rulemaking instead of individual adjudication, but also contrary to the previous opinions of this Court and that court of appeals in this *same* matter. *Vermont Yankee II*, 435 U.S. at 549.

It is well settled that it is a valid exercise of administrative discretion for an agency to determine certain generic findings by a rulemaking without duplicative con-

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individual licensing actions. Arguments II and III address the adequacy of the Commission's quantifications in Table S-3 and the error of the court of appeals' reliance on that Circuit's *Minnesota* decision, respectively.

[17] The majority also appears to retreat from its former approval of the Commission's quantification of the fuel cycle impacts other than reprocessing and waste management. In stating that "[i]t is impossible for this court to determine whether there are other numerical values in Table S-3 that mask uncertainties without using such conservative heuristic devices as a worst-case scenario" (Pet. App. 52a), Judge Bazelon may be including an invitation to debate also the uncertainties considered in estimates of the front-end activities. The accompanying footnote 145 includes, but is not limited to, reference to back-end activities (Pet. App. 52a n.145).

sideration in subsequent individual proceedings.[18] Further, in this particular matter, both this Court and the court of appeals have explicitly approved the NRC's decision to proceed by rulemaking rather than individual adjudication in determining the fuel cycle environmental impacts.[19] *Vermont Yankee II*, 435 U.S. at 535 n.13; *Vermont Yankee I*, 547 F.2d at 641 n.17.

After extensive discussion of the well-settled law of informal rulemaking, this Court concluded that the only question remaining for the court of appeals on remand was "the question of whether the challenged rule finds sufficient justification in the administrative proceedings that it should be upheld by the reviewing court." *Ver-*

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[18] *SEC v. Chenery Corp.*, 332 U.S. 194, 203, *rehearing denied*, 332 U.S. 783 (1947); *United States v. Allegheney-Ludlum Steel Corp.*, 406 U.S. 742 (1972); *Morton v. Ruiz*, 415 U.S. 199, 231-33 (1974); *FCC v. National Citizens' Committee for Broadcasting*, 436 U.S. 775, 808-09 n.29 (1978). "[This Circuit's] own acceptance of the general principle that regulatory agencies may on occasion validly dispatch their business by rulemaking rather than by individual adjudication is clear. *Pacific Coast European Conference v. Federal Maritime Commission*, 376 F.2d 785 (1967)." *Pacific and Southern Co. v. FCC*, 405 F.2d 1371, 1372 (D.C. Cir. 1968). *See also Chicago v. FPC*, 458 F.2d 731, 742 (1971), *cert. denied*, 405 U.S. 1074 (1972); *American Airlines, Inc. v. CAB*, 359 F.2d 624, 630 n.10 (D.C. Cir.), *cert. denied*, 385 U.S. 843 (1966); *Minnesota v. NRC*, 602 F.2d 412, 416-17 (D.C. Cir. 1979); *Ecology Action v. AEC*, 492 F.2d 998, 1002 (2d Cir. 1974).

[19] This new special status for uncertainty as an environmental cost to be debated in each licensing proceeding even contradicts Judge Bazelon's own conception in *Vermont Yankee I*. In *Vermont Yankee I*, then Chief Judge Bazelon stated that for a court to find the "record [sufficient] to sustain a rule limiting consideration of the environmental effects of nuclear waste disposal to the numerical values stated in Table S-3," *that record must contain* "a thorough exploration of the problem involved in waste disposal, including past mistakes, *and a forthright assessment of the uncertainties* and differences in expert opinion." 547 F.2d at 653 (emphasis added). This analysis by Judge Bazelon at that time recognized that consideration of uncertainty is a part of the process of quantifying a cost, *not* a separate cost.

*mont Yankee II*, 435 U.S. at 549. In doing so, this Court explicitly endorsed Judge Tamm's conclusion in *Vermont Yankee I*, 547 F.2d at 661, and allowed for the court of appeals to take due account of additions to the record made by the Commission in the course of supplementary consideration. *Vermont Yankee II*, 435 U.S. at 535 n.14. The court of appeals stated in *Vermont Yankee III* that it was in fact considering the entire expanded (and now mountainous) record in deciding the validity of all of the rules (Pet. App. 19a & n.39).

This Court also instructed the court of appeals directly that the fact that the quantifications resulting from their rule are to be used in the context of NEPA statements "cannot serve as the basis for a substantial revision of the carefully constructed procedural specifications of the APA." *Vermont Yankee II*, 435 U.S. at 548.

The issue now is whether the court of appeals limited its review in accord with the foregoing instructions. This Court must be assured that we have properly characterized the holding at issue.[20] This task is made somewhat difficult by some of the general language used in the opinion for the court as to the agency's ability to use rulemaking (*e.g.*, Pet. App. 43a-44a). However, we agree with Judge Wilkey's dissenting opinion that the only rule which would be acceptable to the court of appeals would be one which allows intervenors, in individual licensing proceedings, to debate continuously the uncertainties which the Commission has already considered in arriving at the quantifications determined in the rulemaking (Pet. App. 161a-63a).

In its Conclusion, the majority of the court of appeals invalidated all three generations of the rule not for a

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[20] As this Court said in its prior consideration of this same matter: "But before determining whether the court of appeals reached a permissible result, we must determine exactly what result it reached and in this case that is no mean feat." *Vermont Yankee II*, 435 U.S. at 539. That task may, once again, not be easy.

failure to consider uncertainty in those rulemakings, but for "their failure to allow for proper consideration of the uncertainties" (Pet. App. 69a; emphasis added). In its analysis, the majority said:

> As we have emphasized above, NEPA requires an agency to consider the environmental risks of the proposed action in a manner that allows the existence of such risks to influence the agency's decision to take the action. An agency can do this by having the appropriate decisionmakers consider all that is known and unknown about the risks before deciding whether to take an action.

(Pet. App. 51a; footnote omitted).[21] In short, the majority would require a debate in every licensing proceeding not of the Commission's quantifications of costs but of the uncertainties considered in arriving at those quantifications. As Chief Judge Edwards of the Sixth Circuit said in concurring:

> I agree that it is arbitrary and capricious for the NRC *to close off discussion* of the grave problems involved in building a permanent repository for all nuclear waste *by categorical determination* in Table S-3 that there will be zero releases. As I read this record, neither the Commission nor the Commission staff really defend the zero-release conclusion for any purpose other than to prevent discussion of the issue at licensing hearings.

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[21] By implying that the Atomic Safety and Licensing Board is the "appropriate decisionmaker," the court of appeals also errs. It is the Commission which decides whether to issue a nuclear power reactor license under 42 U.S.C. § 2133 (1976 & Supp. IV 1980) (Pet. App. 398a), and there is no question whether the Commission has considered the uncertainties. Thus, the Commission's consideration of the uncertainty is adequate. 10 C.F.R. §§ 2.770 (general), 2.764(e)(3) (construction permit), 2.764(f)(2) (operating license) (1982); *see Aberdeen & Rockfish Railroad v. SCRAP*, 422 U.S. 289, 321-22 (1975) (*"SCRAP II"*). In any event, if Table S-3 presents a conservative quantitative statement of the costs (including uncertainty of the impact) for use of the Licensing Board, that Board need not allow debate of "uncertainty" itself.

(Pet. App. 87a; emphasis added).[22]

Moreover, it appears that the court below is once again of the opinion that NEPA has established some new special requirement for the consideration of uncertainty related to generic facts. This is a direct contradiction of this Court's instructions. It appears that the court of appeals has not accepted that direction: it finds that "the Table S-3 Rules are arbitrary and *in violation of NEPA* because they fail to allow for consideration of uncertainties underlying the assumption that no radiological effluents will be released into the biosphere once wastes are sealed in a permanent repository" (Pet. App. 34a; emphasis added). *See also*, Bazelon, *Science and Uncertainty: A Jurist's View*, 5 HARV. ENV. L. REV. 209, 211 & n.10 (1981) (citing *Vermont Yankee I* as good law on the court's role in assuring "thorough ventilation," three

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[22] Insofar as Judge Edwards reads the Table S-3 Rule as deciding the issue of whether a particular waste repository design is safe or whether there will be releases from such a repository, he is mistaken. The sole purpose of this rule is to determine a conservative quantification of the environmental costs of the Uranium Fuel Cycle. The question of confidence in the nation's ability to construct such safe storage is the subject of a separate rulemaking by order of the same court of appeals. Waste Confidence Rulemaking, 44 Fed. Reg. 61,372 (1979), *on remand from Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979). *Contra NRDC, Inc. v. NRC*, 582 F.2d 166 (2d Cir. 1978). And waste storage facilities are subject to individual licensing. 42 U.S.C. § 5842 (1976). The court of appeals would make the validity of this rule dependent, in part, on the Waste Confidence Rulemaking (Pet. App. 219, 221a). See Argument III, *infra*.

Judge Edwards also believes that, if the Table S-3 Rule is valid, it "could be taken by the Commission as final approval of its original and present plans for processing spent fuel, fabricating uranium and plutonium into mixed oxide fuel therefrom, and shipping this fuel to nuclear reactors all over the country" (Pet. App. 82a). This is another misconception. The Commission has consistently recognized that the recycle of plutonium in mixed oxide fuel is the subject of a separate proceeding (*e.g.*, Pet. App. 245a, 370a n.28), which proceeding Judge Edwards discusses at length (Pet. App. 81a-103a) although it has no relation to the rule under review.

years after its rejection by this Court in *Vermont Yankee II*).

This position of the court of appeals is further illustrated by exchanges with petitioners Commonwealth Edison *et al.*, the Commission and Judge Wilkey.

1. *Commonwealth Edison Co., et al.* In our brief before the court of appeals, we argued that the issue was not whether the Table states uncertainty (much less whether it allows for its further discussion), but whether the Commission has recognized the existence of uncertainty and dealt with it in a rational fashion in reaching the quantification of the costs stated therein. Brief of Commonwealth Edison Co., *et al.* at 12 (July 24, 1980).[23] We further argued that insofar as NEPA requires an EIS to include a discussion of uncertainty, incorporation by reference to the rulemaking was appropriate. Brief of Commonwealth Edison Co., *et al.* at 12 n.4 (July 24, 1980).[24] The opinion for the court below directly identified, and explicitly rejected, our argument (Pet. App. 48a n.133 as corrected at Pet. App. 192a).

2. *The Commission.* In their Petition for Rehearing and Suggestion for Rehearing En Banc the Commission and the United States argued:

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[23] We said: "Finally, Petitioner NRDC's criticism of the table for 'failing to disclose the substantial uncertainties' is incorrect and misleading. The issue is not whether Table S-3 itself states uncertainties but rather whether the Commission has recognized and addressed in a rational fashion the existence of uncertainties in making its findings." See note 24 *infra*, for footnote 4 to that Brief.

[24] At note 4 of that Brief, we said: "Further, insofar as NEPA requires that the EIS contain, or refer to, a discussion of the uncertainties, it is recognized that incorporation by reference is permissible under NEPA. *See Scientists' Institute for Public Information, Inc. v. AEC*, 481 F.2d 1079, 1082-92 (1973) (*"SIPI"*)." Such incorporation by reference is accomplished explicitly by note 1 to the Table in the Interim rule and thereafter (Pet. App. 257a, 272a, and 382a-83a). *See* CEQ, 12TH ANNUAL REPORT, App. B, Question 25b (1981).

> The record is clear that the Commission took full account of uncertainties. The Commission reasonably found no advantage in having licensing boards repeatedly weigh for themselves the uncertainties inherent in the values contained in the rule. Having carefully considered the uncertainties, the agency was entitled to proceed, and the panel erred by, in effect, substituting its judgment for that of the agency. *North Slope Borough v. Andrus*, 642 F.2d 589, 605 n.93 (D.C. Cir. 1980); *State of Alaska v. Andrus*, 580 F.2d 465, 473-74 (D.C. Cir.), vacated in part as moot, 439 U.S. 922 (1978).

Petition for Rehearing and Suggestion for Rehearing En Banc by the U.S. Nuclear Regulatory Commission and the United States of America at 11 (June 1982). Senior Circuit Judge Bazelon, in a statement as to why he voted to deny rehearing, replied to the Commission:

> The Commission further argues that, under NEPA, an agency should be able to assess environmental costs in the abstract and subsequently exclude them entirely from consideration when the decision is being made whether to go forward with a project. Id. at 11. We held, and I strongly believe, that this type of consideration violates NEPA, and if permitted, would eviscerate the procedural regiment that NEPA established. As this court stated in Calvert Cliffs, NEPA requires that "environmental issues be considered at every important stage in the decisionmaking process concerning a particular action at every stage where an overall balancing of environmental and nonenvironmental factors is appropriate and where alterations might be made in the proposed action to minimize environmental costs." 449 F.2d at 1118.

(Pet. App. 187a).[25]

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[25] If Judge Bazelon's reading of *Calvert Cliffs'* (that the licensing board must be able to consider uncertainty regardless of a rulemaking decision) is correct, we suggest that *Calvert Cliffs'* should be rejected by this Court explicitly. *Cf., SCRAP II*, 422 U.S. at 321 n.20.

3. *Judge Wilkey.* In his dissent, Judge Wilkey expressed puzzlement at how Judge Bazelon could uphold the Commission's conclusion of economic feasibility and yet be "unwilling to afford the same deference to the Commission's consideration of the uncertainties relevant to its technological predictions . . . [i]f in the economic arena, the court must accord to the Commission the deference due in this case." (Pet. App. 170a). Judge Bazelon answered that the holdings were distinguishable since the NRDC had not challenged "the conclusion that the zero-release assumption is *reasonable*," but rather has challenged the Commission's "arbitrary exclusion of the uncertainties surrounding that assumption from any consideration in the licensing process," while New York challenged the Commission's conclusion of economic feasibility but did not raise the issue of further consideration of economic uncertainties (Pet. App. 61a n.174; emphasis added). Judge Bazelon then added: "Economic uncertainties, of course, *still* must be factored into the analysis." *Id.* (emphasis added.) This implies that Judge Bazelon may find sufficient support in the record for the Commission's conclusions in Table S-3 as to the environmental costs (as he did for economic feasibility); in any event, it states that the validity of the determination of economic feasibility in no way prevents further debate[26] concerning the "economic uncertainties" in individual reactor licensing proceedings if an intervenor raises the issue.

On the basis of this analysis and the more extensive analysis in his dissenting opinion, we agree with Judge Wilkey that

> [i]n a series of small steps, Judge Bazelon has held that uncertainties in the assumptions underlying the figures in the fuel cycle rule can be considered, con-

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[26] If intervenors accept Judge Bazelon's invitation, the finding of economic feasibility would be meaningless since the uncertainties underlying it would be open to debate in each licensing proceeding. Thus, this dicta (in connection with the holding not challenged here) also is incorrect. *See* note 14 *supra*.

> sistent with NEPA, only as separate environmental costs, [and] has severely qualified and limited the Commission's authority to determine by an otherwise reasonable generic process that certain factors do not merit separate consideration in individual licensing proceedings.

(Pet. App. 162a; footnote omitted).

Nonetheless, the opinion for the court of appeals appears to find that the only degree of worst-case analysis which is acceptable is where the Commission made assumptions of a degree of impact not scientifically possible (*compare* Pet. App. 51a *with* Pet. App. 289a-93a).

Further, the court of appeals appears to premise its requirement on the CEQ Regulations at 40 C.F.R. § 1502.22 (1981) (Pet. App. 54a & n.149). Not only were these CEQ Regulations not in effect until after the Commission's decision on the Final Rule (July 27, 1979) (Pet. App. 383a),[27] they are not binding on the Commission,[28] and the Commission has not adopted them.[29]

Also, we suggest that the Commission's conservative approach to the quantification of the costs more than fully complies with a reasonable concept of "worst-case" analysis. *See North Slope Borough v. Andrus*, 486 F.

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[27] The CEQ Regulation became effective July 30, 1979, 43 Fed. Reg. 55,978 (1978); *Vermont Yankee II*, 435 U.S. at 554-55.

[28] Congress did not give the CEQ any authority to issue regulations binding on the Executive Branch or the independent agencies, but only provided for consultation. 42 U.S.C. §§ 4344, 4372(d)(5) (1976). President Carter's Executive Order giving the CEQ the power to make regulations binding on Federal agencies reaches only the Executive Branch, not independent agencies which are "arms of the Congress." Exec. Order No. 11,991, 3 C.F.R. 123, 124 (1978); *see* Exec. Order No. 12,044, 43 Fed. Reg. 12,661, 12670 (1978). And the CEQ recognized in its Regulations that they are not binding on Congress (and, therefore, not binding on its creatures such as the Commission). *Compare* 40 C.F.R. § 1500.3 (1981) *with* 40 C.F.R. § 1508.12 (1981).

[29] The Commission states explicitly that it performs its NEPA responsibilities in accordance with that Act and the 1973 Guidelines, not the 1978 Regulations. 10 C.F.R. § 51.1(a) (1982).

Supp. 332, 346-47 (D.D.C.), *aff'd in relevant part*, 642 F.2d 589, 605-06 (D.C. Cir. 1980).[30] The court of appeals concept of a worst-case analysis would deprive the Commission and other federal agencies of the ability to

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[30] The court in *North Slope Borough* stated that a worst-case analysis must be "a reasonable means of alerting the decision maker to the dangers presented by proceeding in the face of uncertainty." 486 F. Supp. at 347, *quoted and aff'd* 642 F.2d at 605. The test articulated by the court to judge the validity of this type of analysis was that the court must "weigh the reasonableness of the worst case analysis in light of its purpose of alerting the decision maker to the risks presented by proceeding despite gaps in information." 486 F. Supp. at 346. An agency's worst-case analysis is not to be invalidated simply because the agency relied on certain assumptions. The worst-case analysis is required to be "a reasonable estimation of the most severe consequences that can be expected based upon certain assumptions. It was not unreasonable for the agency to rely on those assumptions." *Id.* at 347. Such assumptions are appropriate since "[t]he [decisionmaker] plainly cannot be expected or required to wait until the totality of environmental effects is known." 642 F.2d at 605 (footnote omitted). NEPA cannot be

> read as a requirement that complete information concerning the environmental impact of a project must be obtained before action may be taken. If we were to impose a requirement that an impact statement can never be prepared until all relevant environmental effects were known, it is doubtful that any project could ever be initiated.

*Jicarilla Apache Tribe of Indians v. Morton*, 471 F.2d 1275, 1280 (9th Cir. 1973), *quoted in Alaska v. Andrus*, 580 F.2d 465 (D.C. Cir. 1978), *vacated and remanded on other grounds sub nom. Western Oil & Gas Ass'n. v. Alaska*, 439 U.S. 922 (1978). The D.C. Circuit has acknowledged delay in the face of uncertainty may not be warranted and that the court should defer to the agency's judgment:

> One of the costs that must be weighed by decisionmakers is the cost of uncertainty—*i.e.*, the costs of proceeding without more and better information. Where that cost *has* been considered, and where the responsible decisionmaker has decided that it is outweighed by the benefits of proceeding with the project without further delay, the courts may not substitute their judgment for that of the decisionmaker and insist that the project be delayed while more information is sought. *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n.21, 96 S.Ct. 2718, 49 L.Ed.2d 576 (1976).

*Alaska v. Andrus*, 580 F.2d at 473-74.

exercise technical judgment and profoundly distort the decisionmaking process. *See also* CEQ, 12TH ANNUAL REPORT, App. B, Question 18 (1981).

## II. TABLE S-3'S CONSERVATIVE ASSESSMENT OF THE RADIOLOGICAL IMPACT OF THE "BACK-END" ACTIVITIES MORE THAN COMPENSATES FOR THE COMMISSION'S ASSESSMENT OF POSSIBLE RELEASES FROM THE REPOSITORY AS ZERO AFTER SEALING

The Commission's task in the interim and final rulemakings was to assess the scientific data and apply scientific methodology in supplementing the record of the Original Rule's quantification of the environmental impact of spent fuel which is either (a) put into permanent storage (disposal) as spent fuel, or (b) reprocessed to recover the uranium for recycle with only the plutonium and waste products put into permanent storage. Since no national decision had been made (nor has it now) as to the alternative to be followed, the Commission assessed both alternatives and combined the most severe impacts of each up until sealing of the repository.

Having postulated the release of all radioactive gases prior to sealing, it then examined the mechanisms for the transport of the remaining radionuclides to the biosphere and the probabilities of such transport occurrence after sealing. Finding that migration would be unlikely to occur and, if it did, that the time would be so long as to minimize any impact, the Commission decided that it was safe in concluding that there would be no, or slight, impact from these remaining nuclides and that, in any event, its excessive conservatism in calculating impacts before sealing more than compensated for any lack of conservatism in this estimate (Pet. App. 363a-70a, 384a. *But see* Pet. App. 388a-90a).

On review of the combined record of all three generations of that rulemaking, the court of appeals focuses on this one subsidiary part of the Commission's statements

of basis, namely, the use of balancing assumptions, on the one hand, that *all* of the fission product gases in *all* spent fuel would be released before the repository is sealed and, on the other hand, that there would be no release of the remaining radioactive materials after repository sealing (Pet. App. 363a-70a). This has come to be mischaracterized by the court of appeals as a "zero-release" assumption, when in fact the Commission has assumed, most conservatively, that the entire inventory of volatile radionuclides is released.[31]

In examining the record, the court of appeals discusses at length the Commission's recognition of whether the releases from the repository after sealing would be zero (Pet. App. 34a-46a) as if zero release after repository sealing were the finding of the rule, rather than one source of impact considered in estimating the fuel's overall impact. On the basis of this barely existent mathematical uncertainty (Pet. App. 302a-03a, 179a-80a nn.171-73), the court of appeals states that the only alternative to its discussion in every licensing proceeding would be a rule which quantifies the impacts on the basis of a "worst-case" scenario[32] (Pet. App. 51a), where the court defines the "worst-case" by the Commission's treatment of the volatile radioactive gases, that is, "worst-case" equals

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[31] Thus Judge Edwards errs when he suggests that the Commission has not taken account of "scientific information strongly suggest[ing]" the release of gaseous radionuclides (Pet. App. 87a). The Commission not only took account of the possibility that *some* fuel elements might release part of their inventory of gaseous radionuclides, it assumed the scientifically impossible release of the *total* inventory of gaseous radionuclides by *all* fuel elements (Pet. App. 373-74a).

[32] We believe the court of appeals intends the following terms as perfect synonyms for each other: " 'worst-case' estimates," "conservative assumptions," "upper bound of reasonably foreseeable costs," "that level of environmental damage," "upper bounds of environmental risks," and "such conservative heuristic devices as a worst-case scenario" (Pet. App. 51a-52a).

*total* release of the *total* radioactive inventory of the fuel without taking account of any barrier or decay.

This ignores the function of the rule to quantify the overall impact of the fuel cycle and would nullify the legislatively delegated and judicially recognized responsibility of the Commission to exercise technical expertise.

This Court and the courts of appeals have generally recognized that the nature of nuclear technology requires an assessment by the Commission of uncertainties to decide on probabilities of safety. *See, e.g., Power Reactor Development Co. v. International Union of Electrical Workers*, 367 U.S. 396 (1961); *Nader v. NRC*, 513 F.2d 1045 (D.C. Cir. 1975); *Nader v. Ray*, 363 F. Supp. 946, 954 (D.D.C. 1973).

In this case, the record shows that the Commission has used a compound series of conservative assumptions to quantify the costs of the back-end of the fuel cycle as detailed in the Conclusions and Recommendations of the Hearing Board (Pet. App. 280a-293a).

In connection with the proposed Interim Rule, the Commission issued the ENVIRONMENTAL SURVEY OF THE REPROCESSING AND WASTE MANAGEMENT PORTIONS OF THE LWR FUEL CYCLE, A TASK FORCE REPORT, NUREG-0116 (Supp. 1 to WASH-1248) (October 1976) ("NUREG-0116"). This 300-page document relied for its analysis on 21 pages of scientific references. NUREG-0116 at 4-176 through 4-196. It analyzed at greater length and in greater detail the reprocessing and waste management stages of the fuel cycle, than WASH-1248 had analyzed all eight stages of the fuel cycle in the original rulemaking.

It considered two options: (1) spent fuel disposal (where there is no reprocessing and therefore the impacts occur in the predisposal storage of spent fuel and any releases of radioactivity after repository sealing (NUREG-0116 at 2-12 through 2-13)); and (2) reprocessing and disposal of the high-level waste product of

reprocessing (which includes releases from reprocessing, tank storage, the solidification process, interim storage at the reprocessing plant itself and a retrievable surface storage facility, and further releases which may occur at the federal repository. NUREG-0116 at 2-3 through 2-6).

Table 2.8 of NUREG-0116 presents a comparative summary of the environmental impacts of spent fuel disposal as opposed to reprocessing with disposal of the waste product. A comparison of these impacts with those listed in Table S-3 indicates that wherever the Commission found that one alternative had a greater impact (as to a particular aspect) than the other, the Commission included the greater impact in Table S-3. Further, as that comparison shows, the Commission often made even more conservative assumptions as to the impact than that actually expected.

The reprocessing option contains fission products in three forms at various times: gaseous, liquid and solid. In the spent fuel disposal alternative, fission products exist in two forms: gaseous and solid.

***Conservatism in the Spent Fuel Disposal***

Table S-3 assumes that all fission product gases will be released as a result of the failure of both the spent fuel package and the fuel cladding [33] but that the solid fission products are retained by the salt. NUREG-0116 at 4-107. Further, the assumption is made that the fission product inventory of the spent fuel in the sealed repository is 11 million curies/RRY which consists of the inventory five-ten years after discharge from the reactor without credit for further decay.[34] This scenario includes stor-

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[33] Contrary to these assumptions, the literature teaches that only one percent of the fuel rods "may be breached by the time of packing". NUREG-0116 at 4-112.

[34] We suggest that the statement in Respondent's Brief in Opposition that the annual reactor discharge (11 million curies) "is roughly equivalent to one-tenth of all the radioactivity released from all

age both at the reactor basin and interim storage prior to insertion into the repository. NUREG-0116 at 4-112. Further, note that the potential quantity of gases available to be released from spent fuel is measured with respect to five-year old fuel. NUREG-0116 at 4-115. This not only greatly exaggerates the inventory of gaseous (volatile) radionuclides available over time for release

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nuclear weapons tests (over 400) conducted through 1962" is somewhat misleading. Respondent NRDC's Brief in Opposition at 12 (footnote omitted). It appears that NRDC was considering only releases of strontium-90 in atmospheric testing through 1962. *See* Brown & Crouch, *Extreme Scenarios for Nuclear Waste Repositories*, 43 HEALTH PHYSICS, 345, 347 (Sept. 1982), *cited in* Respondent NRDC's Brief in Opposition at 12 n.16. Further, the other article relied on by NRDC identifies 801 "announced" nuclear detonations with a cumulative yield of about 325 megatons between 1945 and June 30, 1975. *See* Carter & Moghissi, *Three Decades of Nuclear Testing*, 33 HEALTH PHYSICS, 55, 58 (July 1977), *cited in* Respondent NRDC's Brief in Opposition at 12 n.16.

While a comparison of (a) the releases to the atmosphere of only one of the isotopes from some nuclear weapons tests with (b) the total unreleased isotope inventory of 5-10 year old commercial radioactive waste buried more than 600 meters under the earth is a comparison of apples and oranges, the following example may add some balance to Respondent NRDC's prior statement.

If one applies the usually accepted calculation that a one kiloton nuclear explosion produces 30,000 megacuries of radioactivity at one minute after detonation, *see* GLASSTONE & DOLAN, eds., THE EFFECTS OF NUCLEAR WEAPONS 390 (GPO 3d ed. 1977), the total production of radiocatvity from "announced" nuclear tests through 1975 is 9.75 quadrillion curies ($9.75 \times 10^{15}$). This is equivalent to the curie inventory of *886,360,000 annual reactor discharges* of 11 million curies each. Thus, in order to equal the curie production of all announced nuclear tests through the year 1975, the United States would have to operate *200* nuclear power units of 1,000-megawatt each *for approximately 4.43 million years. But see* Pet. App. 178a n.170.

Petitioners note that neither the prior NRDC example nor our current example take account of the quality, half-life, or pathways to man of the isotopes involved. For a discussion of nuclear weapons effects, see THE NATIONAL RESEARCH COUNCIL, NATIONAL ACADEMY OF SCIENCES, LONG-TERM WORLDWIDE EFFECTS OF MULTIPLE NUCLEAR-WEAPONS DETONATIONS (1975).

but also is compounded by an exaggeration of the likelihood of release by a factor of 100. NUREG-0116 at 4-112.

The conservatism of this approach is further demonstrated by the recent EPA proposed rule which would *ignore* release of both tritium and krypton-85 and would estimate realistic high level waste/spent fuel releases of carbon 14 to be less than one third of the conservative assumption in Table S-3. *Proposed Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes (40 CFR Part 191)*, 47 Fed. Reg. 58,196 (1982).

***The Reprocessing Option***

This option assumes that the fuel is shipped from the reactor to the reprocessing facility 150 days after removal from the reactor. NUREG-0116 at 4-5. It is conservative for various reasons: (1) it assumes an annual reload of 35 MTU, NUREG-0116 at 4-10, whereas a realistic assumption would be on the order of 22-27 Mtu, NUREG-0216 at B-171 (this conservatism alone exaggerates the impact by 30-60 percent); (2) the use of fission product and actinide activity for five-year old spent fuel, NUREG-0116 at 4-11, further exaggerates the potential impacts of the high-level waste by 50 percent over ten-year old fuel and *a fortiori* over older fuel, especially in view of the fact that storage of the solidified high-level waste at both the reprocessing plant and at a retrievable surface storage facility (for up to 100 years) is contemplated before insertion into the repository was considered. NUREG-0116 at 4-24 through 4-37.

***Disposal in a Federal Repository***

In addition to the releases and impacts conservatively calculated to occur prior to emplacement in the federal repository, the Commission separately considered the impacts that could occur after such emplacement. NUREG-0116 at 4-71 through 4-117. It was assumed that the

high-level waste would be in a glass form within a metal canister. NUREG-0116 at 4-75.

The Commission analyzed four types of events that might directly or indirectly produce repository failure after it is sealed, NUREG-0116 at 4-86 through 4-87: (1) "Natural rapid events uninfluenced by humans; *e.g.*, meteorite impact that breaches repository containment"; (2) "Natural geologic events or processes independent of the existence of the repository; *e.g.*, faulting and erosion"; (3) "Geologic events or processes caused by the repository; *e.g.*, events or processes stimulated by the radiation source, thermal source and gradients, etc."; and (4) "Human actions directly or indirectly effecting [sic] the repository, *e.g.*, acts of war or sabotage, mineral resource exploration, reservoir construction, etc." In analyzing the possibility of a release from any of these events, a waste emplacement of 600 meters was assumed.

It has been calculated that it would require a meteorite with a 2 kilometer diameter to reach that depth and that the probability of such a strike on a given square kilometer of the earth is $2\times10^{-14}$ per year (once every 50 trillion years). *Id.* As to the second event, the probability of a fault intersecting an 8 $km^2$ repository was estimated to be $4\times10^{-11}$ per year (once in 25 billion years). *Id.* The third category was discussed but the probabilities were not estimated at the time of the issuance of NUREG-0116. With respect to the fourth event, the Commission considered a surface burst of a 50 megaton nuclear weapon [35] and determined that even such a gigantic explosion would not breach the repository. *Id.* And it further considered the possibility of a violation of the repository as a result of random wildcat drilling to be $4\times10^{-4}$ per year (once in 2,500 years). But, of course, this sort of a breach would not result in the release of

[35] The largest nuclear warhead currently deployed is 20 megatons. INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES, THE MILITARY BALANCE 1982-1983 at 112-18 (1982).

any significant activity except through the introduction of water and subsequent migration *if* the hole was not plugged. *Id.*

With respect to migration, the Commission noted literature that after the passage of 1,000 years, the hazard potential of the waste in the repository is less than of an equivalent amount of uranium ore. NUREG-0116 at 4-89. The Commission then presented extensive calculations of the hazard index of these events to the population. NUREG-0116 at 4-88 through 4-99 including Figures 4.9, 4.10 and 4.11 and Tables 4.19 through 4.24.[36]

After receiving public comments from 52 private persons and other entities, including state and federal agencies, the Commission responded to those comments and published another volume: PUBLIC COMMENTS AND TASK FORCE RESPONSES REGARDING THE ENVIRONMENTAL SURVEY OF THE REPROCESSING AND WASTE MANAGEMENT PORTIONS OF THE LWR FUEL CYCLE (NUREG-0116) NUREG-0216 (Supp. 2 to WASH-1248) ("NUREG-

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[36] Judge Bazelon (Pet. App. 36a n.100) states that the environmental risk is "the product of the environmental damage that could occur and the probability of its occurrence." Although this method of calculation is somewhat less sophisticated than the Commission's hazard index (discussed above), we think its application to the risks supposedly "ignored" by the Commission may be useful. The following calculations are made on the assumption of fuel having an inventory of 11 million curies after sealing in the repository (an exaggerated or conservative assumption). On this basis, the meteor strike has an annual environmental cost of 22 one-hundred millionths of one curie per year and the risk of fault intercepting the repository has a risk of 44 one-hundred thousandths of one curie per year. The significance of the "omission" of these alleged costs may then be measured against the statement of curie releases in excess of 400 thousand in Table S-3.

"In the absence of proof that a 'worst case' discussion in the FEIS would have meaningfully illuminated the dangers or materially added to the decisionmaker's awareness of the spectrum of consequences involved, its absence in the FEIS does not violate NEPA." *Sierra Club v. Sigler*, 532 F. Supp. 1222, 1234 (S.D. Tex. 1982).

0216"). This document reprinted the comments received (over 350 pages) with cross-references in detail to the 135 pages of the Commission's responses.

A number of these comments address the repository integrity after sealing. This led to further consideration of such unlikely events as the complete melting of the polar ice cap, NUREG-0216 at 3-80, the recognition that the risk of various events discussed in NUREG-0116 are subject to uncertainties on the order of plus or minus two orders of magnitude, NUREG-0216 at 3-88, and that there is a 1 in 100,000 risk per reactor year of exceeding the 10 C.F.R. Part 100 radiation dose limits. NUREG-0216 at 3-90. It also provides a chart summarizing the hazard-index components for nuclear fuel, NUREG-0216 at 3-93, which illustrates that the fission product inventory of nuclear fuel begins to decrease rapidly about 20 years after discharge and falls below that of natural uranium ore in the earth somewhat before a thousand years.

Thus, it is on the basis of a record consisting of NUREG-0116 and NUREG-0216 as addressed in the Commission's Statement of Consideration (Pet. App. 259-270a) that the Interim Rule rests.

In the final rulemaking the Commission started with the record thus previously formed in the interim rulemaking and allowed for considerable further evidence to be submitted and oral legislative proceedings to be conducted including inviting all parties to submit final statements summarizing and analyzing the record. Commonwealth Edison Co., *et al.*, submitted an extensive final written statement addressing among other issues those relating to the federal repository. For the convenience of the Court, we have included that chapter in its entirety in the Joint Appendix (J.A. 238-63).

After the record was closed, the Hearing board fulfilled its responsibilities in summarizing the record. We also provide to the Court, as part of the Joint Appendix, the

chapter on high-level waste disposal (J.A. 264-80). A significant conclusion of that report is that if the repository is not breached by any of the cataclysmic events discussed above, the period of time required for the leaching of radioactivity from the repository into the biosphere is such that the released radioactivity "would be of the same order as, or less than, doses from natural sources" (J.A. 271; *see also*, J.A. 277-80).

Respondent NRDC states that EPA expressed "substantial reservations about the finding of no significant risk of radioactive releases from a permanent waste disposal facility." Respondents' Brief in Opposition at 19. In fact, it appears that EPA was seriously confused about the scope and purpose of the S-3 rule (J.A. 151-56). However, when questioned by the Hearing Board with a view to determining whether EPA considered the rule to be a conservative estimate of the impact, the EPA witnesses admitted that the table was a very conservative statement of the possible environmental effects from high-level waste/spent fuel disposal (J.A. 196-200). It is also interesting to note that the Board suggested to EPA the possibility of following Judge Bazelon's suggested approach of an absolute worse case of possible impact with respect to all the radionuclides (Pet. App. 51a) in the spent fuel (J.A. 199). EPA explicitly rejected that approach stating that it would be "a reductio ad absurdum". *Id.*

In similar manner, the Respondents attribute "substantial reservations about the finding of no significant risk of radioactive release from a permanent waste disposal facility" to the U.S. Geological Survey. Respondents Brief in Opposition at 19 and documents cited therein (*see*, J.A. at 294-378). However, those documents support the contrary of that proposition. In the Foreword to USGS, GEOLOGIC DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTE—EARTH-SCIENCE PERSPECTIVES (Circular 779) (1978) (J.A. 294-335), the Acting Director states (J.A. 297):

> Because the authors are confident that acceptable geologic repositories can be constructed, this paper should not be construed as an attempt to discredit the concept of geologic containment or the work done in the 1960's and early 1970's. However, the earth-science problems associated with disposal of radioactive wastes are not simple, nor are they completely understood. The many weaknesses in geologic knowledge noted in this report warrant a conservative approach to the development of geologic repositories in any medium.

The report goes on to note that 99 percent of the projected curie accumulation in reprocessed waste by the year 2020 will consist of strontium-90 and cesium-137, thus indicating that a 600-year containment would reduce the radioactivity to one-millionth of the initial radioactivity (J.A. 319). This indicates that the time frames necessary for effective isolation of the waste from the biosphere are bound by orders of magnitude by available technology. In short, there is ample basis in the record to support the Commission's quantification of the radiological impacts of the back-end of the Uranium Fuel Cycle.

## III. THE COURT OF APPEALS ERRED BY RELYING ON ITS DECISION IN *MINNESOTA v. NRC* TO INVALIDATE TABLE S-3

In identifying the "uncertainty" over whether and when a repository, or equivalent system of disposal, will be developed as an independent basis for invalidating all of the Table S-3 rules (Pet. App. 45 at n.123), the court below improperly imports a separate incomplete administrative proceeding which was required by judicial decision in excess of judicial authority. This error was identified in our petition. No. 82-551 Petition at 13 n.16. This uncertainty upon which the Court relied is known as the "Minnesota uncertainty." In *Minnesota v. NRC*, 602 F.2d 412, 418 (D.C. Cir. 1979), the Court directed the Commission to consider on remand

> the specific problem isolated by Petitioners—determining whether there is reasonable assurance that an off-site storage solution will be available by the years 2007-09, the expiration of the plants' operating licenses, and if not, whether there is reasonable assurance that the fuel can be stored safely at the sites beyond those dates.

It did so despite explicit recognition that "Congress has chosen to rely on the NRC's (and its predecessor's) assurances of confidence that a solution will be reached." 602 F.2d at 412. And, the court also attempted to distinguish the prior and conflicting decision the Second Circuit in *NRDC, Inc. v. NRC*, 582 F.2d 166 (2d Cir. 1978), by stating that "[o]ur opinion *merely* remands this case to the Commission for such proceedings that it deems appropriate to determine whether there is reasonable assurance that an off-site storage solution will be available when needed—in this case by the years 2007-2009." 602 F.2d at 419-20 (emphasis added).

To the extent that the Minnesota uncertainty addressed the question of whether there ever will be a repository that would be sealed,[37] the court below erred by requiring the Commission to exceed its delegated authority.[38] That

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[37] To the extent that the Minnesota uncertainty addresses the pre-sealing radiological impacts, we have considered those impacts in Argument II *supra*.

[38] In reaching its decision in *Minnesota*, the Court improperly characterized the uranium fuel cycle rule as relying "on testimony of agency personnel that the as-yet unsolved problems of ultimate disposal of nuclear waste would be resolved." 602 F.2d at 418 (citation omitted). In fact, the principal purpose of that rule was to *quantify* the environmental effects of waste disposal.

Even if this Court does not agree with our analysis that the court of appeal's order in the *Minnesota* decision would impermissably require the Commission to develop a record for judicial review of the adequacy of the basis of a Congressional decision, reliance on that decision to invalidate the Uranium Fuel Cycle rule is contrary to the decision of the court of appeal's itself in *Minnesota* where it found that "the S-3 proceedings may not be concerned with the more limited issue identified in the pending cases," 602 F.2d at 418

is, it was error to *require* the Commission to develop a record for judicial review of the adequacy of the basis for the Congress' decision in 1954 that spent fuel/high-level waste can and will be disposed of with due regard for the public health and safety in the appropriate time frame. This is especially true here where Congress has repeatedly reviewed the issue and reinforced its judgment of confidence in waste disposal in authorization, appropriation, and other acts of Congress. *NRDC, Inc. v. NRC*, 582 F.2d 166 (2d Cir. 1978). (*See also* Pet. App. 138a n.60 (Judge Wilkey dissenting)).

In passing the Atomic Energy Act, Congress made the determination, one appropriate for a legislature, that the nation has the ability to conduct safely all activities necessary to the nuclear fuel cycle. The court, however, essentially required the Commission on remand to provide a record to support that policy judgment of Congress. Although the reviewing court may find interstitial decisions to be invalid, it cannot substitute its policy choices for those of Congress without exceeding its constitutional mandate and intruding on the legislative power of Congress.

The AEA does provide a broad mandate to the Commission, but that mandate applies only to interstitial lawmaking authority. A court cannot require an agency to exceed the strictures of its enabling legislation, as the court below has attempted to do in the *Minnesota* decision.

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n.8, and explicitly found the Commission could make the Minnesota issue part of the "pending S-3 proceeding, designate a follow-on generic proceeding, or follow such other courses as it deems appropriate." 602 F.2d at 419 n.10.

Finally, we suggest that it is somewhat anomalous that while the panel in *Minnesota* did not vacate the orders at issue there, 602 F.2d at 418-19, the panel here applied the *Minnesota* decision to vacate the results of an independent rulemaking proceeding (Pet. App. 45a).

The court below, however, implicitly confused the Commission's delegated responsibility to issue licenses and promulgate regulations for particular activities *within* the nuclear power program with the basic responsibility of Congress to authorize and oversee the nuclear power program. In the *Minnesota* decision, the court called into question the decision of Congress to utilize commercially nuclear power to generate electricity.

In requiring the Commission to factor in to its licensing proceedings whether a repository will ever be in place, the court has required [39] the Commission to exceed its delegated authority and thus has significantly intruded on the legislative powers granted to Congress in Article 1 of the Constitution. *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 589 (1952) ("[t]he Founders of this Nation entrusted the lawmaking power to the Congress alone in both good and bad times"). The Constitution, however, has not been interpreted to require that Congress find "every fact upon which it desires to base legislative action or that it make for itself detailed determinations which it has declared to be prerequisite to the application of the legislative policy to particular facts and circumstances . . . ." *Yakus v. United States*, 321 U.S. 414, 424 (1944). The Court has not prohibited the Congress from delegating lawmaking authority to administrative agencies as long as the power was "canalized" within the bounds of the statute. *Id.* 424, 426. The Constitution and the doctrine of separation of powers [40] have

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[39] This is not to say that Congress may not request such a study, or that the Commission may not initiate such a study for its own assurance. 128 Cong. Rec. S10,262 col. 3 (daily ed. July 30, 1980). However, these are not reviewable agency actions.

[40] The doctrine of separation of powers has never had a precise legal definition nor been a technical rule of law, but it has become more of a political doctrine. NOWAK, ROTUNDA, CONSTITUTIONAL LAW 126-27 (1978).

> never been regarded as denying to the Congress the necessary resources of flexibility and practicality, which will enable it to perform its function in laying down policies and establishing standards, while leaving to selected instrumentalities the making of subordinate rules within the prescribed limits and the determination of facts to which the policy as declared by the Legislature is to apply.

*Panama Refining Co. v. Ryan*, 293 U.S. 388, 421 (1935), *quoted in Currin v. Wallace*, 306 U.S. 1, 15 (1939), *quoted in Yakus*, 321 U.S. at 425. Thus, the Congress may vest agencies with interstitial lawmaking authority to permit the formulation of subsidiary administrative policy within the prescribed framework of the statute.[41]

In the Atomic Energy Act of 1954, the Congress delegated such authority to the Commission to promulgate regulations to fill in any voids in its legislation and to provide the technical standards necessary to regulate civilian uses to nuclear power.[42] The Congress stated its

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[41] Mr. Chief Justice Marshall characterized most appropriately the power of Congress to delegate interstitial lawmaking authority to agencies:

> It will not be contended that Congress can delegate to the courts, or any other tribunals, powers which are strictly and exclusively legislative. But Congress may certainly delegate to others, powers which the legislature may rightfully exercise itself.
>
> . . . .
>
> [In such cases,] a general provision may be made, and power given to those who are to act under such general provisions *to fill up the details.*

*Wayman v. Southard*, 23 U.S. (10 Wheat.) 1, 43 (1825) (emphasis added). *See Currin v. Wallace*, 306 U.S. 1, 15 (1939); *Yakus v. United States*, 321 U.S. 414, 424, 426 (1944).

[42] In Section 161(b) of the Act, Congress authorized the Commission to

> establish by rule, regulation, or order, such standards and instructions to govern the possession and use of special nuclear material, source material, and byproduct materials as the Commission may deem necessary or desirable to promote the com-

legislative objectives and guidelines concerning the civilian use of nuclear power in the Act and provided for the Commission to promulgate regulations to implement and augment these directives. Such delegation is most appropriate when Congress legislates in an area where the activity that it seeks to regulate is highly technical and ever evolving. In these instances, Congress may structure the enactment broadly and entrust its construction to an agency with the necessary experience, expertise, and resources to monitor its operation. *See Mourning v. Family Publications Services, Inc.*, 411 U.S. 356, 365, 374 (1973).

Although the activities of each branch of the federal government overlap and blend together, *see Nixon v. Administrator of General Services*, 433 U.S. 425, 442-43 (1977), the Court has always maintained the position that a court "does not sit as a board of revision to substitute its judgment for that of the Legislature or its agents as to matters within the province of either." *St. Joseph Stock Yards Corp. v. United States*, 298 U.S. 38, 51 (1936). The Court repeated this position in *United Steelworkers of America v. United States*, 361 U.S. 39 (1959):

> It may be that the assumptions on the basis of which Congress legislated were ill-founded or have been invalidated by experience. It may be that the considerations on the basis of which the President exer-

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mon defense and security or to protect health or to minimize danger to life or property.

42 U.S.C. § 2201(b) (1976). Further, the Commission was authorized to prescribe regulations it deemed necessary "to govern any activity authorized pursuant to this Act, including standards and restrictions governing the design, location, and operation of facilities used in the conduct of such activity, in order to protect health and to minimize danger to life or property." 42 U.S.C. § 2201(i)(3) (1976). The Congress also included a catch-all provision that authorized the Commission to "make, promulgate, issue, rescind, and amend such rules and regulations as may be necessary to carry out the purposes of this chapter." 42 U.S.C. § 2201(p) (1976).

> cised his judgment in invoking the legislation will be found wanting by hindsight. These are not matters within the Court's concern . . . . They certainly do not warrant the Judiciary's intrusion into the exercise by Congress and the President of their respective powers and responsibilities.

361 U.S. at 58 (Frankfurter concurring). In repudiating an attempt to resurrect the substantive due process doctrien of *Lochner v. New York*, 198 U.S. 45 (1905),[43] the Court, *per* Mr. Justice Black, emphasized that "[w]e have returned to the original constitutional proposition that courts do not substitute their social and economic beliefs for judgment of legislative bodies, who are elected to pass laws." *Ferguson v. Skrupa*, 372 U.S. 726, 730 (1963). The Court simply has refused to sit as a "superlegislature." *Id.* at 731.

Most recently in *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519 (1978), this Court cautioned the federal judiciary against doing the very thing that was done in the decision below:

> The fundamental policy questions appropriately resolved the Congress and in the state legislatures are *not* subject to reexamination in the federal courts under the guise of judicial review of agency action. Time may prove wrong the decision to develop nuclear energy, but it is Congress or the States within their appropriate agencies which must eventually make that judgment. In the meantime courts should perform their appointed function.

435 U.S. at 558.

The court below, however, has chosen to announce that the civil nuclear industry is not environmentally sound

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[43] Under the doctrine of substantive due process, the judiciary assumed the ultimate responsibility for regulating by reserving the power to determine independently whether the results of regulation were "reasonable." *See Lochner v. New York*, 198 U.S. 45 (1905), (struck down a state law regulating the hours bakers could work).

until the waste management problem has been solved to test court's satisfaction. The court in *NRDC, Inc. v. NRC*, 582 F.2d 166 (2d Cir. 1978), recognized that the NRDC's argument, the establishment of a regulatory link between reactor licensing and waste disposal, is the type of argument most appropriately made to the Congress and not to the courts. *Id.* at 175 n.14. Indeed, the Second Circuit embraced the position that Congress was well informed on the waste issue and *de facto* acquiesced in the Commission's licensing procedure. *Id.* at 171-72, *quoting Power Reactor Development Co. v. International Union of Electrical Workers*, 367 U.S. 396, 409 (1961). The court stated that the enactment of the Energy Reorganization Act of 1974, 42 U.S.C. §§ 5801-5891 (1976 & Supp. IV 1980)[44] affirmed that Congress had not intended to require a moratorium on nuclear power reactor licensing pending an affirmative determination on the waste disposal issue. 582 F.2d at 174.[45]

In reaching its conclusion in *NRDC, Inc. v. NRC*, the Second Circuit cited fifteen separate hearings before the Joint Committee on Atomic Energy ("JCAE"), spanning a period from 1961 through 1976, wherein the question of waste disposal was reviewed. 582 F.2d 170 n.8. In addition, the Second Circuit noted that, in the 1973 and

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[44] In the Energy Reorganization Act of 1974, Congress explicitly provided that the Commission shall have "licensing and related regulatory authority" over government-owned high level waste spent fuel repositories. 42 U.S.C. § 5842 (1976).

[45] About three weeks after the Second Circuit decided *NRDC, Inc. v. NRC*, representatives of the NRDC appeared before a Senate committee to advocate that Congress "make the final link between the disposal problem and reactors themselves." *Nuclear Waste Management: Hearings Before the Subcomm. on Energy, Nuclear Proliferation and Federal Services of the Senate Comm. on Governmental Affairs*, 95th Cong., 2d Sess. 308 (1978) (statement of Anthony Z. Roisman, staff attorney of the NRDC) [hereinafter cited as *Senate Hearings on Nuclear Waste Management of 1978*], *accord, id.* at 290.

1974 hearings, the Union of Concerned Scientists, Friends of the Earth, and other groups unsuccessfully urged Congress to halt further commercial power plant licensing pending resolution of the waste disposal issue. *Id.* at 171 n.9.

In his dissenting opinion to the decision below, Judge Wilkey, noting that Congress has "stayed abreast of the long-term waste storage problem since *Vermont Yankee I*", listed eight separate Congressional hearings on spent fuel storage and nuclear waste disposal that took place during the years 1977-80. (Pet. App. 23-24 n.60). Judge Wilkey stated, however, that he had only provided a "partial listing" of such hearings.

Indeed, there have been numerous *additional* hearings before Congress concerning both the technology and governmental responsibility for long-term nuclear waste disposal, the Commission's licensing procedures and the implementation thereof, the relative responsibilities of the Federal and State governments for siting, constructing, and operating nuclear waste repositions, and the Commission's authority to continue licensing nuclear plants prior to the final resolution of the waste disposal issue.[46]

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[46] *See, e.g., Hearings on S. 3323 and H.R. 8862 Before the Joint Comm. on Atomic Energy*, 83d Cong., 2d Sess. 168 (1954); *Industrial Radioactive Waste Disposal: Hearings Before the Special Subcomm. on Radiation of the Joint Comm. on Atomic Energy*, 86th Cong., 1st Sess. *passim* (1959); *Hearings on S. 2135 and S. 2744 Before the Subcomm. on Reorganization, Research, and International Organizations of the Senate Comm. on Government Operations*, 93d Cong., 2d Sess. 212-13, 338 (1974); AD HOC SUBCOMM. TO REVIEW THE LIQUID METAL FAST BREEDER REACTOR PROGRAM OF THE JOINT COMM. ON ATOMIC ENERGY, REVIEW OF NATIONAL BREEDER REACTOR PROGRAM, 94th Cong., 2d Sess. 12, 79 (Comm. Print 1976); GENERAL ACCOUNTING OFFICE, REPORT TO THE CONGRESS: IMPROVEMENTS NEEDED IN THE LAND DISPOAL OF RADIOACTIVE WASTES—A PROBLEM OF CENTURIES (RED-76-54) (1976), *reprinted in Nuclear Regulatory Commission Authorizing Legislation, Fiscal Year 1977: Hearings Before the Subcomm. on Legis-*

The subsequent enactment of the Department of Energy Organization Act, Pub. L. No. 95-91, 91 Stat. 565, codified as amended in scattered sections of 42 U.S.C. (Supp. IV 1980), and the Nuclear Waste Policy Act of

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*lation of the Joint Comm. on Atomic Energy*, 94th Cong., 2d Sess. 317-81 (1976); *Nuclear Regulatory Commission Appropriations For Fiscal Year 1978: Hearings on H.R. 3455 Before the Subcomm. on Energy and the Environment of the House Comm. on Interior and Insular Affairs*, 95th Cong., 1st Sess. 27-28, 51-52, 235-36, 238-42, 255-57, 264-84 (1977); *Nuclear Regulatory Commission Authorizations and Related Regulatory Agencies: Hearings on H.R. 5186 and S. 266 Before the Subcomm. on Energy and Power of the House Comm. of Interstate and Foreign Commerce*, 95th Cong., 1st Sess. 10-17, 21-22 (1977); *Nuclear Waste Management and Disposal: Hearings Before the Subcomm. on Oversight and Investigations of the House Comm. on Interstate and Foreign Commerce*, 95th Cong., 1st Sess. *passim* (*see* 46-68) (1977); *Nuclear Waste Management: Hearings Before the Subcomm. on Energy, Nuclear Proliferation and Federal Services of the Senate Comm. on Governmental Affairs*, 95th Cong., 2d Sess. *passim* (*see* 286-360 (1978); *Nuclear Waste Disposal: Hearings Before the Subcomm. on Science, Technology, and Space and the Subcomm. on Surface Transportation of the Senate Comm. on Commerce, Science, and Transportation*, 95th Cong., 2d Sess. Parts 1 and 2 *passim* (1978); *Nuclear Waste Disposal: Hearings Before the Subcomm. on Nuclear Regulation of the Senate Comm. on Environment and Public Works*, 96th Cong., 2d Sess. Part 2 *passim* (1980); *Energfy and Water Development Appropriations, Fiscal Year 1981: Hearings Before the Senate Comm. on Appropriations*, 96th Cong., 2d Sess. Part 1 at 453-638 (1980); *Energy and Water Development Appropriations for 1981: Hearings Before the Subcomm. on Energy and Water Development of the House Comm. on Appropriations*, 96th Cong., 2d Sess. Part 4 at 1-678, Part 12 at 241-359 (1980); *Radioactive Waste Legislation: Hearings on H.R. 1993, H.R. 2800, H.R. 2840, H.R. 2881, and H.R. 3809 Before the Subcomm. on Energy and the Environment of the House Comm. on Interior and Insular Affairs*, 97th Cong., 1st Sess. *passim* (1981); *Nuclear Waste Disposal: Joint Hearings on S. 637 and S. 1662 Before the Senate Comm. on Energy and Natural Resources and the Subcomm. on Nuclear Regulation of the Senate Comm. on Environment and Public Works*, 97th Cong., 1st Sess. *passim* (*see* 236-48) (1981); *National Nuclear Waste Policy Act of 1981: Hearings on S. 1662 Before the Subcomm. on Nuclear Regulation of the Senate Comm. on Environment and Public Works*, 97th Cong., 1st Sess. *passim* (1981).

1982, Pub. L. No. 97-4215, 96 Stat. 2201 (1983), both further bolster the Second Circuit's rationale and the petitioners' position that Congress is the proper forum for respondent's concerns.

In the DOE Organization Act, the Congress assigned nuclear waste management responsibilities to an assistant Secretary of the Department of Energy.[47]

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[47] The DOE Organization Act provides for eight assistant secretaries and contains an enumeration of their functions: "The functions which the Secretary shall assign to the Assistant Secretaries include, but are not limited to, the following: . . . (2) Energy research and development functions, including the responsibility for policy and management of research and development for all aspects of . . . . (E) the fuel cycle for nuclear energy resources. (8) Nuclear waste management responsibilities, including (A) the establishment of control over existing Government facilities for the treatment and storage of nuclear wastes, including all containers, casks, buildings, vehicles, equipment and all other materials associated with such facilities; (B) the establishment of control over all existing nuclear waste in the possession or control of the Government and all commercial nuclear waste presently stored on other than the site of a licensed nuclear power electric generating facility, except that nothing in this paragraph shall alter or effect title to such waste; (C) the establishment of temporary and permanent facilities for storage, management, and ultimate disposal of nuclear wastes: (D) the establishment of facilities for the treatment of nuclear wastes; (E) the establishment of programs for the treatment, management, storage, and disposal of nuclear wastes; (F) the establishment of fees or user charges for nuclear waste treatment or storage facilities, including fees to be charged Government agencies; and (G) the promulgation of such rules and regulations to implement the authority described in this paragraph, except that nothing in this section shall be construed as granting to the Department regulatory functions presently within the Nuclear Regulatory Commission, or any additional functions than those already conferred by law." DOE Organization Act § 203(a), 42 U.S.C. § 7133(a) Supp. IV 1980). During debate, Senator Mathias, author of § 203(a)(8), asserted that this section should ensure that the nuclear waste problem is efficiently and effectively handled. 123 Cong. Rec. S 7948 (daily ed. May 18, 1977).

On December 20, 1982, Congress enacted the Waste Policy Act of 1982, and thereby it addressed many of the concerns raised by respondents.[48]

The Nuclear Waste Policy Act of 1982 provides a detailed decisional scheme for determining the site of the federal repositories and establishes target dates for sites to be recommended to the President.[49] As evidenced by the Waste Policy Act, Congress has continued to move forward on siting and developing a safe federal repository. It has reserved for itself the ultimate site location decision to be made only after extensive testing by DOE and review by the NRC. This action by Congress demonstrates that it is confident the federal repository will be available when needed.

In the past, decisions concerning the uncertainties of developing technologies have been made by the Congress. A prime example is the American supersonic transport (SST) program, which was initially authorized and funded and subsequently terminated by Congress. *See generally* HORWITCH, CLIPPED WINGS (1982). Congress

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[48] Representatives of the NRDC have asserted that "it is entirely appropriate for Congress to determine now, and with some finality, that we should proceed with construction and testing of an initial repository in order to facilitate the permitting of additional nuclear powerplants by the States." *Senate Hearings on Nuclear Waste Management of 1978, supra* note 44, at 290 (statement of Anthony Z. Roisman, staff attorney of NRDC).

[49] Section 112 of the Act provides that DOE must nominate at least five sites that it considers suitable for a repository, and it must recommend three of these to the President for site characterization by January 1, 1985. By July 1, 1989, DOE must again nominate five sites and recommend three to the President for site characterization for a second repository. Section 114 requires the President to make a recommendation for an initial repository to Congress by March 31, 1987 (which may be extended 12 months).

Actually, the Congress seemed to adopt the NRDC's recommendation that a target-date scheme be used by Congress to assure the availability of a federal repository. *Senate Nuclear Waste Management Hearings of 1978, supra* note 44, at 287-88 (statement of Anthony Z. Roisman, staff attorney of NRDC).

began serious consideration of the development of an American SST in May 1960 at hearings before the Special Investigating Subcommitee of the House Commitee on Science and Astronautics. *Id.* at 11-12. Government involvement in the program is illustrated in the appropriation for FY 1970 of $85 million for the development of a civilian SST, including the construction of two prototypes. Department of Transportation and Related Agencies Appropriation Act of 1970, Pub. L. No. 91-168, tit. I, 83 Stat. 454 (1969). In 1971, however, because of significant environmental hazards and uncertainties, hidden cost burdens and poor economics, the Congress terminated the SST program. *See* HORWITCH, supra, at 282-97, 346-49.[50] This demonstrates that when Congress is unsure of a developing technology which it has authorized and funded it will cancel the program and pursue a different course of action.

In this case (waste disposal and the need for a federal repository), the Congress with continuous review since 1954 has chosen to continue to authorize the licensing of reactors and has now established a detailed decisional apparatus and siting scheme for the federal repository. A more positive expression of the confidence of Congress in the technology of waste disposal could not be expected. In these circumstances, the waste confidence proceeding is not only irrelevant to Table S-3, but beyond the power of the judiciary to require.

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[50] In 1971, Congress appropriated $97.3 million for the termination of development of the SST and to refund contractors' cost shares, Second Supplemental Appropriations Act of 1971, Pub. L. No. 92-18, Tit. I, ch. XI, 85 Stat. 40, (1971), and $58.5 million for payment of airlines' contributions toward the development of the SST. Department of Transportation and Related Agencies Appropriation Act of 1972, Pub. L. No. 92-74, tit. I, 85 Stat. 201 (1971).

## IV. THE COURT OF APPEALS ERRED IN DECIDING THAT TABLE S-3 EXCLUDED POTENTIAL ISSUES NOT ADDRESSED THEREIN FROM LICENSING PROCEEDINGS

In holding the Original and Interim Rules invalid "due to their failure to allow for proper considerations of the health, socioeconomic and cumulative effects of fuel-cycle activities," (Pet. App. 52a-60a, 69a) the court of appeals has ignored the direction of this Court that the adequacy of the rule must be measured by the time at which it was adopted and the issues raised at that time.[51] *Vermont Yankee II*, 435 U.S. at 554-55.

Insofar as the court of appeals finds that "it is not releases of curies that Congress wanted disclosed" (Pet. App. 58a), it also contradicts *its own* prior approval of the Original rule's "adequate, even admirable job, of . . . discuss[ing] the risks of accidents and other hazards in detail," which was stated in curies. *Vermont Yankee I*, 547 F.2d at 647.

Further, to the extent the court of appeals relies on the CEQ Regulations to invalidate the Original and unamended Interim Rules (Pet. App. 54a & n.149), it relies on regulations (a) which do not apply to the Commission,[52] (b) which did not become effective until after

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[51] A further, and especially egregious, example of such metachronistic judgments is the majority's criticism of the 1974 and 1977 rules for a failure to address "psychological disruption" (Pet. App. 53a), a factor rejected by other courts of appeals and only recognized by this Circuit 16 months after the argument of Vermont Yankee III. *See People Against Nuclear Energy v. NRC*, 678 F.2d 222 (D.C. Cir. 1982), *cert. granted sub nom. Metropolitan Edison Co. v. People Against Nuclear Energy*, 103 S.Ct. 292 (1982).

[52] The CEQ Regulation became effective July 30, 1979, 43 Fed. Reg. 55,978 (1978); *Vermont Yankee II*, 435 U.S. at 554-55.

Congress did not give the CEQ any authority to issue regulations binding on the Executive Branch or the independent agencies, but only provided for consultation. 42 U.S.C. §§ 4344, 4372(d)(5) (1976). President Carter's Executive Order giving the CEQ the power to make regulations binding on Federal agencies reaches only

the Final Rule was adopted, (c) which were not even proposed until two months after the alleged defect was solved by amendment of the Interim Rule, as well as (d) 15 months after the Interim Rule was adopted, and (e) which four years after the Original Rule became effective. *Compare* 43 Fed. Reg. 25,230 (1978) *with* Pet. App. 259a. 258a, and 237a, respectively.

If this holding of the court of appeals is read to rely on the alleged preclusive effect of the Original and Interim Rules,[53] it fails to distinguish among the concepts of to "allow," "require" and "preclude." The court of appeals, recognizing that the Appeal Board's *Hartsville* decision required the consideration of comparative health effects, finds the Interim rule invalid although the Hartsville decision preceded the issuance of the Interim rule. *Compare In the Matter of Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-367 (1977), 5 N.R.C. 92 *with* Pet. App. 240a (March 14, 1977). In response to the *Hartsville* decision, the NRC prepared testimony for numerous ongoing public hearings and for input to current EISs. That material was the basis for NUREG-0332, HEALTH EFFECTS ATTRIBUTABLE TO COAL AND NUCLEAR FUEL CYCLE ALTERNATIVES (Draft Sept. 1977). See NUREG-0332 at 2.[54]

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the Executive Branch, not independent agencies which are "arms of the Congress." Exec. Order No. 11,991, 3 C.F.R. 123, 124 (1978); *see* Exec. Order No. 12,044, 43 Fed. Reg. 12,661, 12,670 (1978). And the CEQ recognized in its Regulations that they are not binding on Congress (and therefore, not binding on its creatures such as the Commission). Compare 40 C.F.R. § 1500.3 (1981) with 40 C.F.R. § 1508.12 (1981.

[53] The majority's juxtaposition of quotes from separate parts of the record may be somewhat misleading (compare text at Pet. App. 57a nn.161 & 162 with Pet. App. 348a and 350a). The Commission does not state that either the licensing boards or its staff considered further discussion was cut off, but only that the staff considered further discussion was not required.

[54] The evaluation of health effects of the uranium fuel cycle in NUREG-0332 is based on the Table S-3 effluents. NUREG-0332 at 4, 607.

Thus, prior to amendment to the Interim Rule (Pet. App. 259a), the NRC was considering health effects of the fuel cycle in addition to the consideration in Table S-3.

The Court of Appeals also failed to discuss the responsibility of intervenors to raise issues clearly as identified by this Court in *Vermont Yankee II*:

> [W]hile it is true that NEPA places upon an agency the obligation to consider every significant aspect of the environmental impact of a proposed action, it is still incumbent upon intervenors who wish to participate to structure their participation so that it is meaningful, so that it alerts the agency to the intervenors' position and contentions. This is especially true when the intervenors are requesting the agency to embark upon an exploration of unchartered territory . . . .

435 U.S. at 553. Indeed, the court of appeals disregarded its own previous decision in which it stated that "comments must be significant enough to step over a threshold requirement of materiality before any lack of agency response or consideration becomes of concern." *Portland Cement Ass'n v. Ruckelshaus*, 486 F.2d 375, 394 (D.C. Cir. 1973), *cert. denied sub nom. Portland Cement Corp. v. EPA*, 417 U.S. (1974), *quoted in Vermont Yankee II*, 435 U.S. at 553. Not only did respondents herein fail to raise health, socioeconomic, and cumulative effects of fuel-cycle activities,[55] but the court in *Vermont Yankee I*

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[55] The potential inadequacy of the rule's evaluation of cumulative effects was identified by the ACRS as a potential problem. In a letter, dated January 14, 1977, to the Executive Director for Operations, the ACRS stated that it may be useful to include data projecting the impact of the total nuclear industry at periodic intervals up to the year 2000. Letter from M. Bender, Chairman of ACRS, to Lee V. Gossick, Executive Director for Operations of NRC (Jan. 14, 1977), *reprinted in* NUREG-0216 at B-176-77. In response to the ACRS's comment, the Task Force stated that it addressed these impacts and found no cumulative impacts that would alter its conclusions regarding the environmental impacts attributable to reprocessing and waste management of an individual LWR. NUREG-0216 at 3-5 and at 3-115.

found that the agency had done an admirable job in discussing the hazards of the nuclear fuel cycle. 547 F.2d at 647. Those opposing the grant of nuclear reactor licenses have not generally been hesitant to raise issues even when they have already been addressed by the Commission. *See e.g.*, Pet. App. 260a-265a. Their silence on these issues speaks volumes.

Section III.A of *Vermont Yankee II* addressed the adequacy of the Commission's treatment of the energy conservation issue under NEPA. 435 U.S. at 549-55. Therein this Court held that "the concept of 'alternatives' is an evolving one." 435 U.S. at 552. Likewise, other aspects of the adequacy of the scope and depth of any agency consideration (whether or not under NEPA) evolve, and a court, on review, must judge the adequacy of the record to support the content of the rule in the context of the time of the agency's decision, not by later developed judicial standards. 435 U.S. at 554.

If the court of appeals is allowed to invalidate rules on the basis of standards which not only do not apply to, but also did not exist at the time of, the Commission's decisions on those rules, this Court's ruling in *Vermont Yankee I* becomes meaningless. 435 U.S. at 554-55.

## CONCLUSION

The judgment of the Court of Appeals, except insofar as it upheld the Commission's finding of economic feasibility (*see* note 14 *supra*; Pet. App. 61a-69a), should be reversed and remanded with instructions to dismiss all four petitions for review.

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